



WARM DEHULLING

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For “High Protein” meal production with imported beans.

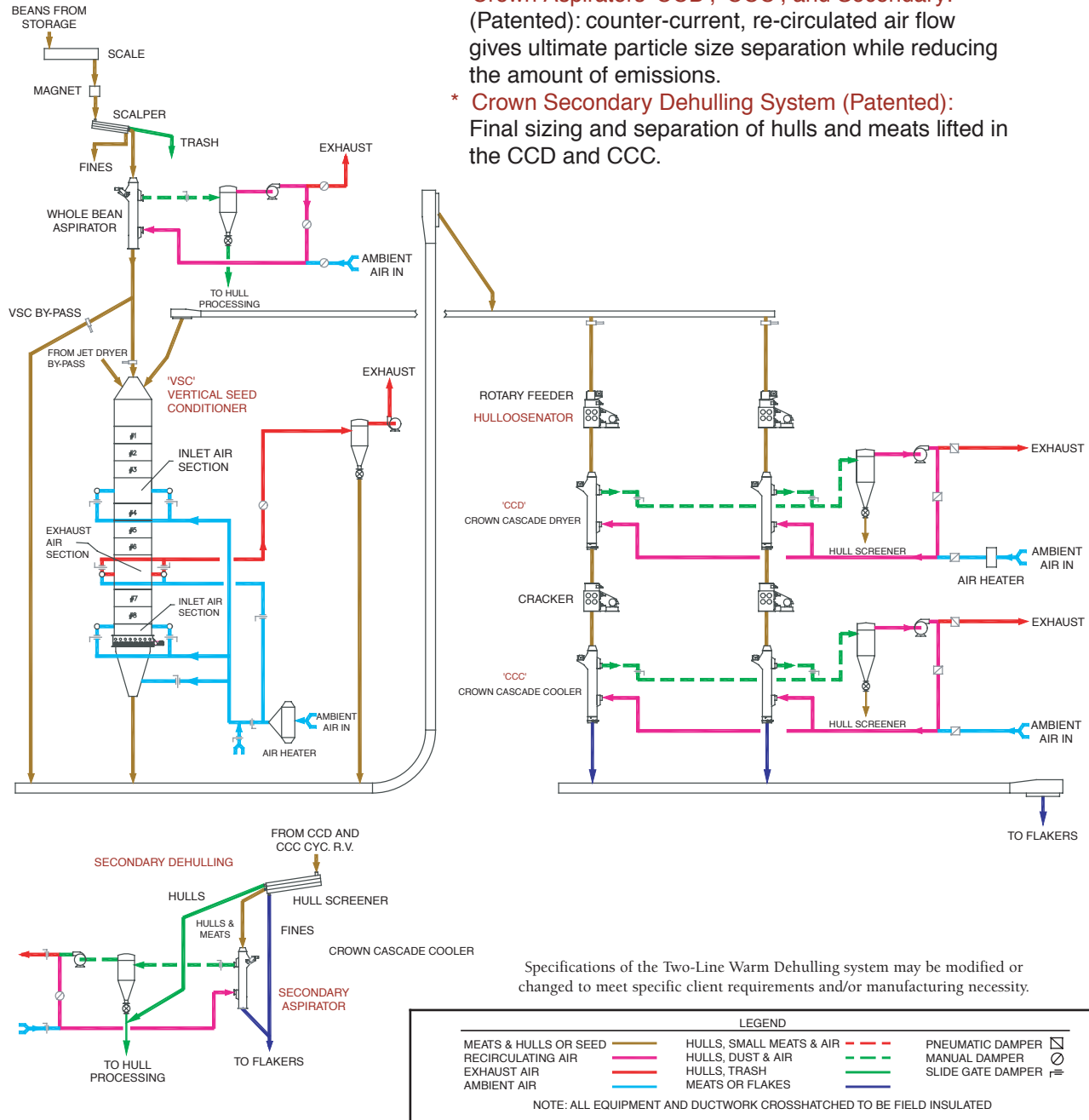
PROCESS DESCRIPTION:

As in the Hot Dehulling system the beans entering the *Crown Warm Dehulling* process should be properly cleaned to remove sticks, pods, and trash. After cleaning, the beans enter the *Crown Whole Bean Aspirator* to remove loose hulls and field dust. The beans then enter the *Crown Vertical Seed Conditioner ‘VSC’* to condition the beans by a slow heating process raising the temperature of the bean. As the bean temperature rises, the moisture of the bean migrates to the surface allowing the patented *Crown Aspiration System* to remove the moisture, drying the beans and softening the hulls. After the VSC the beans go directly to the *Crown Hulloosinator®*, which uses a steel corrugated roll to split the beans in half and a rubber coated roll to “scuff” the bean, separating the hulls from the meats along with minimizing the amount of fines. The half beans and loose hulls then enter the *Crown Cascade Dryer ‘CCD’*. In the CCD, the half beans and hulls cascade downward releasing even more hulls. Re-circulated countercurrent heated air will lift the hulls separating the two products. After the CCD, the meats enter a double stand *Cracker* where the meats are sized for flaking. The sized meats and loose hulls enter the *Crown Cascade Cooler ‘CCC’*. As in the CCD, the meats cascade downward, releasing the last remaining hulls. The heavier meats fall out the bottom of the CCC as the lighter material is lifted with the countercurrent airflow. In the CCC, fresh air is introduced to cool the meats for proper extraction temperatures. The product lifted in the CCD and CCC is a combination of hulls and small meats that are separated in the *Crown Secondary System*. A two deck *Hull Screener* is used to size the material in three cuts, hulls sent to hull processing, meats sent to flakers, and the middle cut, a combination of small meats and hulls. The middle cut is sent to a *Crown Secondary Aspirator* where the final fiber and hull fat separation is controlled.



Typical Two-Line Warm Dehulling Flowsheet

- * **Crown Vertical Seed Conditioner 'VSC' (Patented):**
Heats, dries, and conditions all beans evenly, preparing the beans for hull removal.
- * **Crown 'Hulloosensor' (Patented):**
Breaks beans in halves and rolls hull loose of meats while creating minimal amount of fines.
- * **Crown Aspirators 'CCD', 'CCC', and Secondary:**
(Patented): counter-current, re-circulated air flow gives ultimate particle size separation while reducing the amount of emissions.
- * **Crown Secondary Dehulling System (Patented):**
Final sizing and separation of hulls and meats lifted in the CCD and CCC.



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